to curb or at least reexamine environmental policies, they do not agree with the scope or pace of environmental overhaul proposed by the Republican congressional leadership," the report says. Further, "newly elected members of Congress who feel they have been brought to Washington with a mandate to gut environmental laws are out of touch with what the public really wants."

Of those surveyed, 45% say they are dissatisfied with the Republican environmental agenda that is included in the *Contract with America*, while 39% say they are satisfied.

Republican members of Congress have been warned that their environmental agenda is not consistent with the public's views. According to an editorial in *The New York Times*, Linda DiVall, a Republican polltaker whose clients include Senator Phil Gramm and Speaker Newt Gingrich, warned Republicans that "our party is out of sync with mainstream American opinion," including a "disturbingly" large number of Republicans.

However, satisfaction with the Clinton administration's environmental agenda is decreasing. While 49% of Americans are satisfied with the environmental agenda of the Clinton administration, this figure is down from 1994's satisfaction rate of 55%. Forty-one percent are dissatisfied.

The Times Mirror report shows that an increasing number of Americans (27%, up from 18% in 1992) are casting votes based on a candidate's environmental position. This change is evidenced by the recent election of Ron Wyden, a Democrat elected to fill Bob Packwood's Senate seat in Oregon. According to DiVall's editorial in *The New York Times*, exit polls suggested that Republican efforts to undermine environmental laws played a critical role in Wyden's upset win.

The report was presented to the Society of Environmental Journalists at its Fifth National Conference held at the Massachusetts Institute of Technology in Cambridge, Massachusetts, in October. Vice President Al Gore spoke to conference attendees about the state of environmental legislation. He criticized Congress for not representing the American people's views on the environment. "We Americans support protecting the environment," Gore said. "What we're seeing today in Congress is devastation with misrepresentation. This is the most anti-environmental Congress in the history of the United States."

A topic particularly important to the SEJ conference attendees was the report finding that most Americans think the media are doing only a fair (52%) or poor (27%) job of reporting on environmental issues. Less than half of Americans (42%) feel that the environmental coverage the media provide is accurate. About 35% say that the media make environmental situations appear "worse than they really are," while 16% think the media make environmental situations appear "better than they really are." Over half of Americans (52%) want more environmental coverage in the future. "News about the environment is extremely important to the American people," Gore said.

The report calls for more environmental education because 90% of Americans say their knowledge of the environment is limited: "Clearly, further environmental education is needed to increase concern about the environment, which in turn may make Americans more cognizant of environmental problems and more active in hunting for solutions."

Turning Brownfields Green Again

Throughout the United States, the urban landscape is marred by deserted and dilapidated factories and littered lots, often contaminated with toxic materials. Lying unused, these so-called brownfields have robbed cities of some of their vitality. "You have declining tax bases in urban areas, you have jobs leaving urban areas, you have property that will continue to remain contaminated, and the continuing encouragement of urban sprawl," says James Bower, brownfields coordinator for the EPA's midwestern region. "Cities are in big trouble if they can't find a way to recycle their land."

Over the past several years, however, states have begun to try new ways to spur development of these sites. One major technique is to relax liability laws and regulations so that developers can clean the sites and not be liable for past contamination.

The problem is large. A survey of 39 cities released by the U.S. Conference of Mayors estimated 21,000 brownfields sites. The EPA estimates 300,000 brownfields sites nationwide. "But no one has a comprehensive inventory of all the brownfields sites in the country," says Linda Garczynski of the EPA Office of Solid Waste and Emergency Response.

Contaminants at these sites can include asbestos which causes cancer; lead, which causes nerve and brain damage; organic solvents, which can damage kidneys; and PCBs, which have been linked to cancer and liver damage. The specter of huge liability from toxic contamination has squelched efforts by developers to pump economic life into these sites. The reality though, says Bower, is that "the vast majority of sites are not that contaminated and do not pose a health risk."

According to Jay Pendergrass, an attorney with the Washington, DC-based Environmental Law Institute, at least 20 states have passed legislation with brownfields cleanup in mind. Much of the legislation has been passed in the past five years.

Minnesota has been at the forefront of the brownfields effort with 700 sites cleaned up or being cleaned up since the late 1980s and returned to providing taxes and payrolls. One dramatic instance is a $25 million clinic built in Minneapolis on an abandoned lot once contaminated with industrial solvents and garbage.

Last year the EPA announced its own brownfields agenda, which included working with cities and states to redevelop brownfields. The agency has funded 40 brownfields pilot demonstration projects at $200,000 each and plans to fund 10 more at the same level by next June. The money typically pays for soil and groundwater testing, information programs, site selection, and reuse plans.

Already, the EPA's midwestern region has distributed $2 million through the Superfund program to help states and cities begin addressing brownfields, says Bower. In Chicago alone, the region has spent over $5 million to actually remove toxic wastes from abandoned buildings to prepare them for sale to developers.

While Bower and Garczynski talk optimistically about the potential for rejuvenated brownfields to bring jobs and tax money to cities, concerns remain in the environmental justice community. "I think it's important that the stakeholders—including government, industry, business—all recognize the community has to have a say in determining what shape the redevelopment takes," says Robert Bullard, director of the Environmental Justice Resource Center at Clark Atlanta University.

"There needs to be effort placed on developing good models for community participation that give people in the neighborhood an appropriate opportunity to look at how decisions are being made and how sites are being cleaned up," says Tim Brown of Clean Sites, a nonprofit-public interest group involved in brownfields cleanups. The EPA has refused to fund pilot projects that can't show community participation, according to Garczynski.

Controlling land use is high on the list of priorities for making sure the toxic contamination problem doesn't repeat itself and pose a neighborhood threat. For example, cleanup at a site to be used for indus-

try can meet a lower standard than if people were going to live on it. Bullard says it's all right "to talk about lower standards" if the property is always going to be designated for industrial use. But if schools and residences enter the picture, he maintains, cleanup has to be stricter.

In Wisconsin, brownfields cleanups require state certification that any contamination left in place will be isolated and pose no human health threat. Furthermore, in a move typical in brownfields cleanups, zoning and deed restrictions will be placed on the property to ensure it remains used for industrial, rather than residential, purposes. Pendergrass offers cautious optimism however, noting that such restrictions may be ignored or forgotten. In addition, while cleaning up brownfields does offer promise, he says, not every contaminated site can be cleaned up economically.

Biosphere 2's Quest for Credibility

Because controversy, rather than credibility, has surrounded the Biosphere 2 project since its inception, the owner has passed management to Columbia University in an effort to use the structure for more sound scientific purposes.

As of the first of this year, Columbia's Lamont-Doherty Earth Observatory in Palisades, New York, is managing and directing Biosphere 2's scientific, educational, and visitor's center operations per a five-year agreement between owner and benefactor Edward Bass and Columbia.

The $150 million enclosed glass and steel structure located in Oracle, Arizona, was originally built to test the theory that humans could survive on Mars in a self-contained structure, recycling all air, water, and waste, if Earth ever became uninhabitable.

The 3.15-acre structure is the largest tightly sealed ecological laboratory ever built, enclosing seven different biomes—a rain forest, a savanna, an ocean, a marsh, a desert, an area of intensive agriculture, and a human habitat. These biomes collectively house about 3,800 plant and animal species, including a living coral reef.

Scientists can control almost all of the variables—temperature, humidity, plant and animal species, soil nutrients, and atmospheric gases—except light. These variables are monitored by over 1,000 sensors located throughout the biosphere that send information to the on-site Operations Center.

A team of eight people lived in Biosphere 2 from September 1991 to September 1993 to test the idea that they could live in the self-contained environment without outside assistance. The attempt failed due to several factors, and the credibility of the operation was damaged by mismanagement and criticism from the scientific community.

One example of a scientific problem was that carbon dioxide and nitrous oxide reached extremely high levels in the air inside Biosphere 2, hindering the activities of the inhabitants. The managers, in an effort to continue the project, concealed the fact that they had to use scrubbers to remove the excess gases from the enclosed air.

In April 1994, Bass called in federal marshals to remove the former managers. He hired Stephen Bannon, an investment banker who specializes in corporate turnarounds, as acting CEO to find new management for Biosphere 2. Bannon collaborated with scientists to look at the research possibilities for Biosphere 2, and then made the deal with Columbia.

Scientists agree that Biosphere 2 provides an unparalleled opportunity to study the effects of global warming. "The intellectual lure of the biosphere is tremendous," said Wallace Broecker, a Newberry Professor of Geology at the Lamont-Doherty Earth Observatory and a member of the National Academy of Sciences, in a press release announcing the agreement.

"The big advantage of a sealed experimental system like this one is that we can assess the daily growth of plants in Biosphere 2 and see how it changes with temperature or light or carbon dioxide content of the air or other factors. We can monitor carbon dioxide uptake by the plant community as a whole as well as by individual plants, and we can also monitor the water use by the whole community. We can create a whole future inside Biosphere 2 and develop ways to gain some control over what is otherwise an unknown future," Broecker said.

Columbia researchers have begun conducting studies in Biosphere 2 to examine the effects of increasing carbon dioxide levels on plants. Last winter, Broecker says, researchers completed an experiment in which they used plastic curtains to separate the desert and rain forest biomes, and tracked the carbon dioxide levels. They measured the rates of carbon fixation and the water expenditure of the plants. "We have found that the expenditure of water goes down linearly as carbon dioxide goes up. This has implications for agriculture of the future," Broecker said. "Plants may grow with less irrigation." Broecker says they are planning other experiments with different plants to study the various effects of increasing carbon dioxide.

So far, Broecker and Bruno Marino, a biogeochemist and Biosphere 2's science director, have developed two specific goals. The first is to conduct experiments on the long-term impact of increasing atmospheric carbon dioxide on plant and coral communities. The second is to conduct experiments designed to elucidate the factors influencing the isotopic composition of marine and terrestrial plant material.

The scientists plan to physically divide Biosphere 2 into two major parts—a wilderness and an agricultural unit—which will be maintained at separate environmental conditions.

To establish an internal control for the experiments, the scientists plan to subdivide the agricultural unit into three environmentally independent parts. This will

Karen Silva

Biosphere: take two. Researchers hope new management by the Lamont-Doherty Earth Observatory at Columbia University will make use of Biosphere 2 for unique scientific investigations.